

F02K

JET-PROPULSION PLANTS (arrangement or mounting of jet-propulsion plants in land vehicles or vehicles in general [B60K](#); arrangement or mounting of jet-propulsion plants in waterborne vessels [B63H](#); controlling aircraft attitude, flight direction or altitude by jet reaction [B64C](#); arrangement or mounting of jet-propulsion plants in aircraft [B64D](#); plants characterised by the power of the working fluid being divided between jet-propulsion and another form of propulsion, e.g. propeller, [F02B](#), [F02C](#); features of jet-propulsion plants common to gas-turbine plants, air intakes or fuel supply control of air-breathing jet-propulsion plants [F02C](#))

Definition statement

This place covers:

Jet propulsion plants

References

Limiting references

This place does not cover:

Arrangement or mounting of jet-propulsion plants in land vehicles or vehicles in general	B60K
Arrangement or mounting of jet-propulsion plants in waterborne vessels	B63H
Controlling aircraft attitude, flight direction or altitude by jet reaction	B64C
Arrangement or mounting of jet-propulsion plants in aircraft	B64D
Plants characterised by the power of the working fluid being divided between jet propulsion and another form of propulsion, e.g. propeller	F02B or F02C
Features of jet-propulsion plants common to gas-turbine plants, air intakes or fuel supply control of air-breathing jet-propulsion plants	F02C

Special rules of classification

In this subclass the Indexing Code scheme [F05D](#) is used as follows:

[F05D 2200/00](#) Mathematical features

[F05D 2210/00](#) Working fluid

[F05D 2220/00](#) Application

[F05D 2230/00](#) Manufacture

[F05D 2240/00](#) Components

[F05D 2250/00](#) Geometry

[F05D 2260/00](#) Function

[F05D 2270/00](#) Control

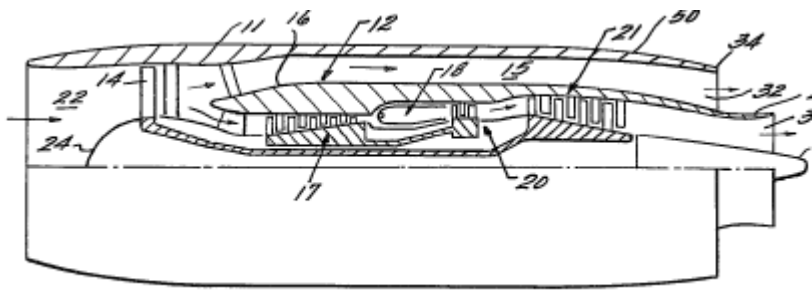
[F05D 2300/00](#) Materials

F02K 1/00

Plants characterised by the form or arrangement of the jet pipe or nozzle; Jet pipes or nozzles peculiar thereto (rocket nozzles [F02K 9/97](#))

Definition statement

This place covers:
Plants characterised by the form or arrangement of the jet pipe or nozzle, jet pipes or nozzles peculiar thereto.



taken from US3881315

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Rocket nozzles	F02K 9/97
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F02K 1/002

{with means to modify the direction of thrust vector ([F02K 1/54](#) takes precedence; thrust vectoring of rockets [F02K 9/80](#); aerodynamic vectoring surfaces [B64C](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Thrust vectoring of rockets	F02K 9/80
Aerodynamic vectoring surfaces	B64C

Special rules of classification

[F02K 1/54](#) takes precedence

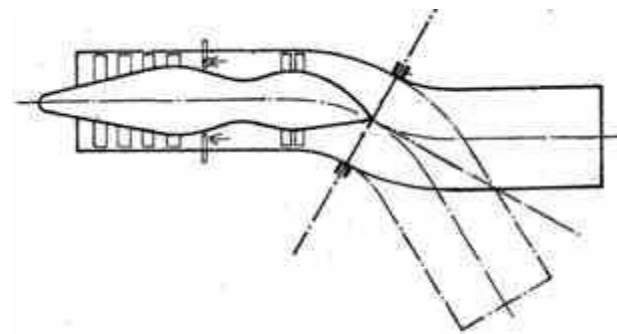
F02K 1/004

{by using one or more swivable nozzles rotating about their own axis}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from DE1049711

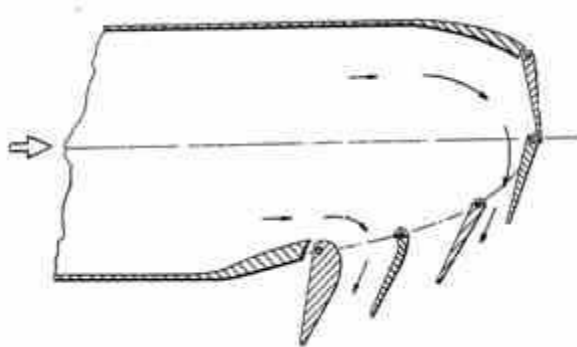
F02K 1/006

{within one plane only}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from US3258206

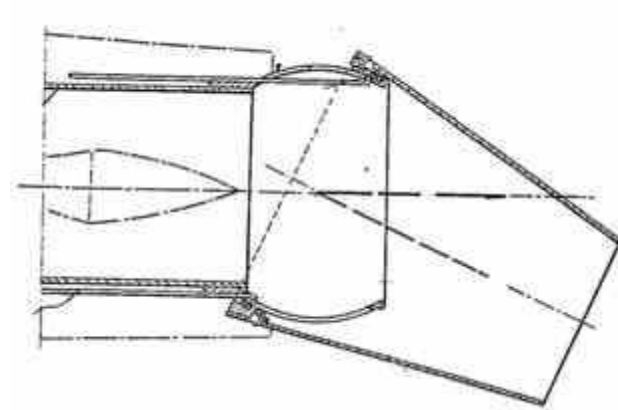
F02K 1/008

{in any rearward direction}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from FR1025827

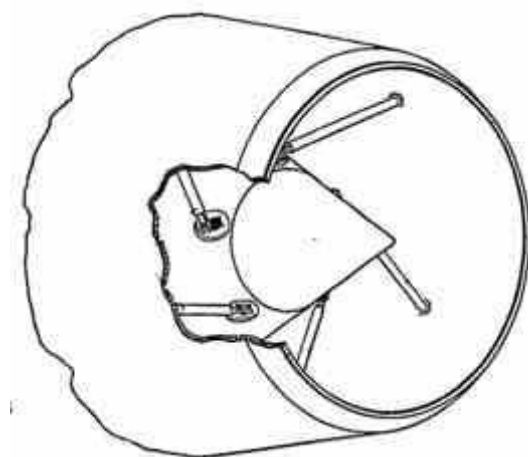
F02K 1/04

Mounting of an exhaust cone in the jet pipe

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from GB812513

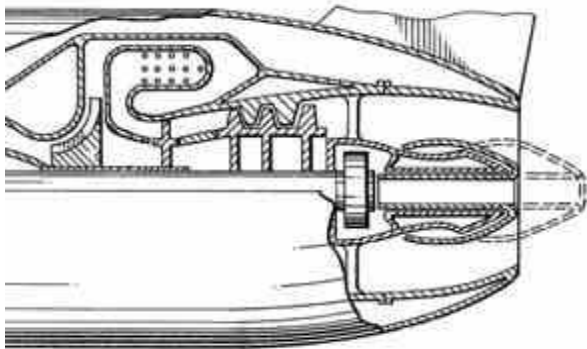
F02K 1/08

by axially moving or transversely deforming an internal member, e.g. the exhaust cone

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from US4244294

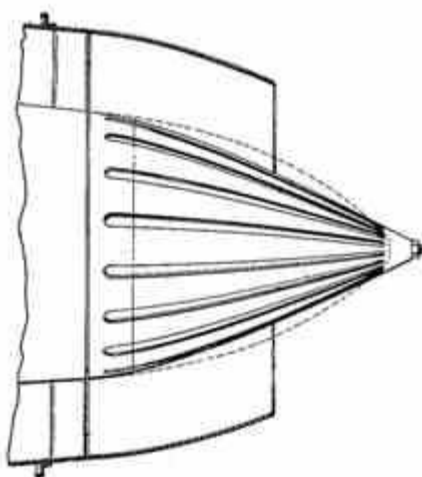
F02K 1/085

{by transversely deforming an internal member}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from US2641104

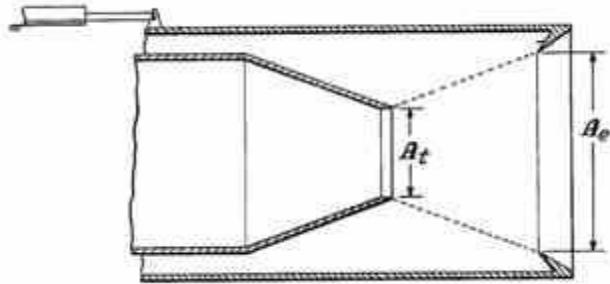
F02K 1/09

by axially moving an external member, e.g. a shroud (F02K 1/12 takes precedence)

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from US3138921

Special rules of classification

[F02K 1/12](#) takes precedence

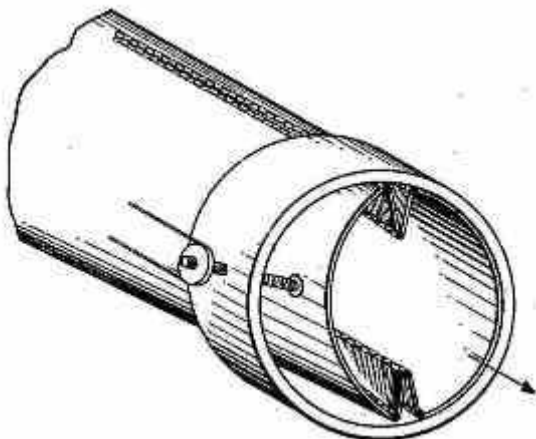
F02K 1/10

by distorting the jet pipe or nozzle

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from US2593420

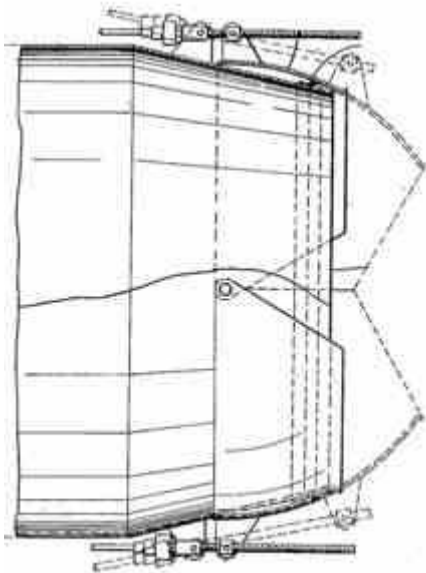
F02K 1/11

by means of pivoted eyelids

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from US2637972

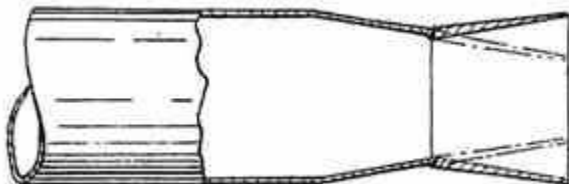
F02K 1/1207

{of one series of flaps hinged at their upstream ends on a fixed structure
([F02K 1/1215](#) - [F02K 1/1276](#) take precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from GB750307

Special rules of classification

[F02K 1/1215](#) - [F02K 1/1276](#) take precedence

F02K 1/1215

{of two series of flaps, the upstream series having its flaps hinged at their upstream ends on a fixed structure, and the downstream series having its flaps hinged at their downstream ends on a fixed structure}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from GB871274

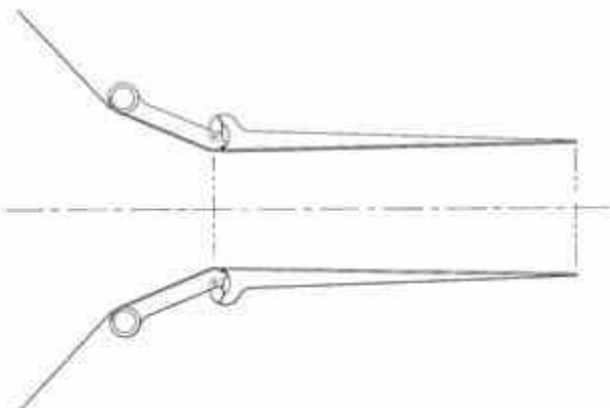
F02K 1/1223

{of two series of flaps, the upstream series having its flaps hinged at their upstream ends on a fixed structure and the downstream series having its flaps hinged at their upstream ends on the downstream ends of the flaps of the upstream series}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from US6352211

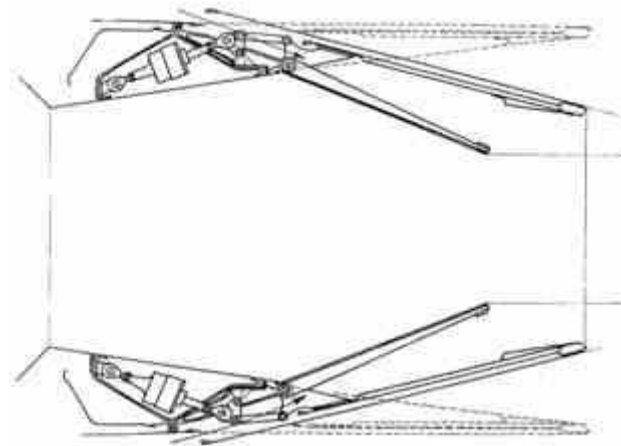
F02K 1/123

{of two series of flaps, both having their flaps hinged at their upstream ends on a fixed structure}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from FR1602540

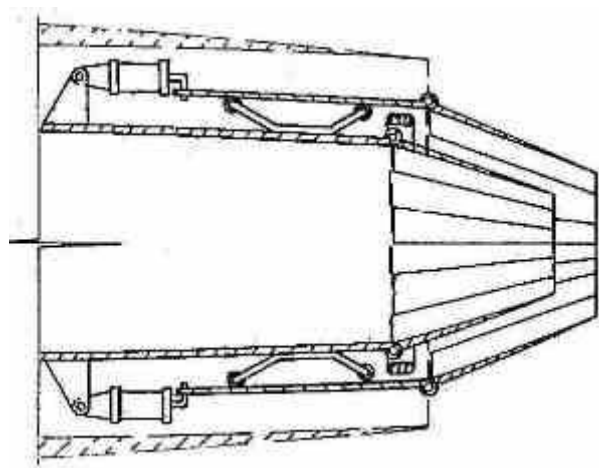
F02K 1/1238

{of two series of flaps, the upstream series having its flaps hinged at their upstream ends on a fixed structure and the downstream series having its flaps hinged at their upstream ends on a substantially axially movable structure}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from US2870600

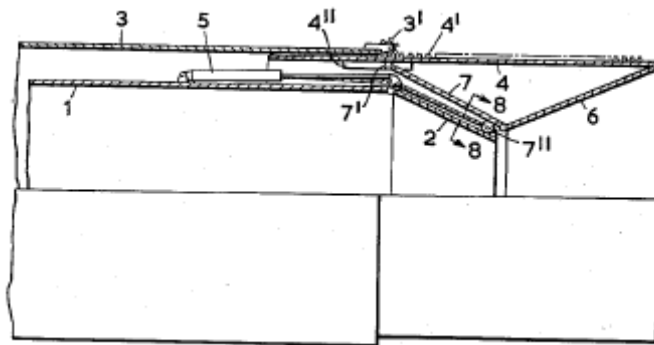
F02K 1/1246

{of two series of flaps, the upstream series having its flaps hinged at their upstream ends on a fixed structure and the downstream series having its flaps hinged at their downstream ends on a substantially axially movable structure}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from US2974481

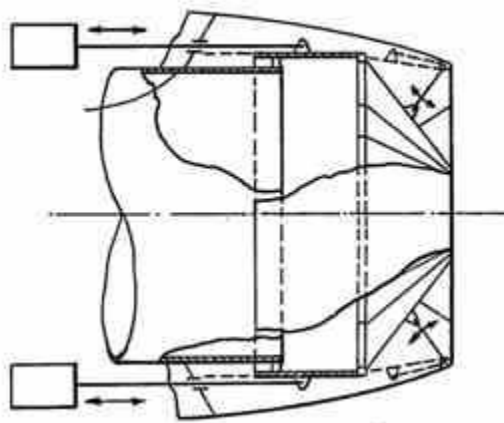
F02K 1/1261

{of one series of flaps hinged at their upstream ends on a substantially axially movable structure}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from US5273213

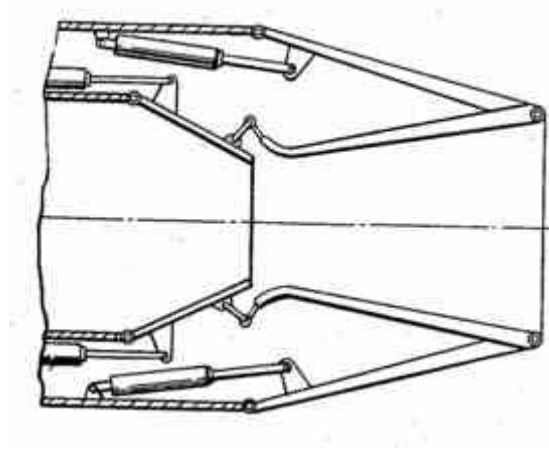
F02K 1/1269

{of three series of flaps, the upstream series having its flaps hinged at their upstream ends on a fixed structure and the internal downstream series having its flaps hinged at their downstream ends on the downstream ends of the flaps of the external downstream series hinged on a fixed structure at their upstream ends}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

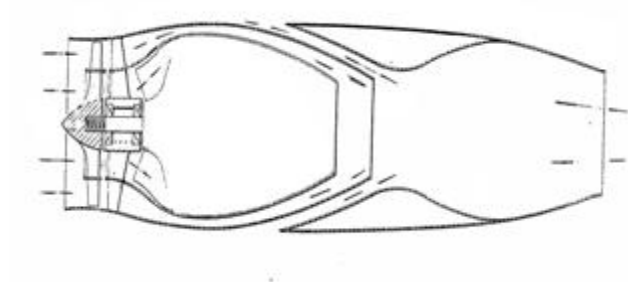
**F02K 1/36**

having an ejector

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



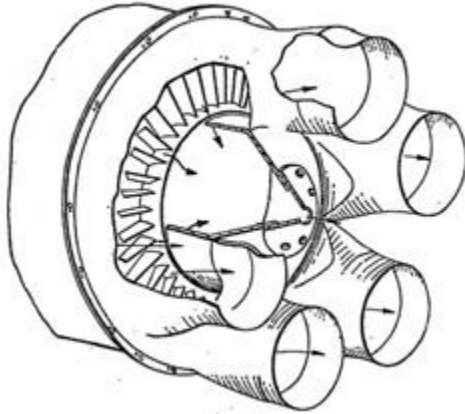
F02K 1/40

Nozzles having means for dividing the jet into a plurality of partial jets or having an elongated cross-section outlet

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

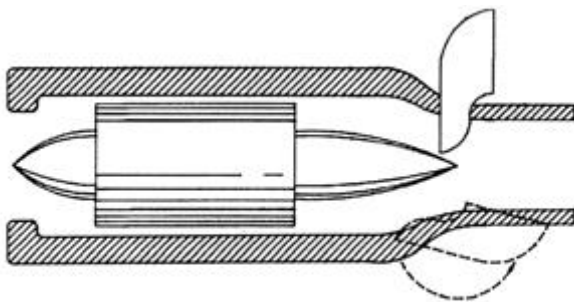
**F02K 1/42**

the means being movable into an inoperative position

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



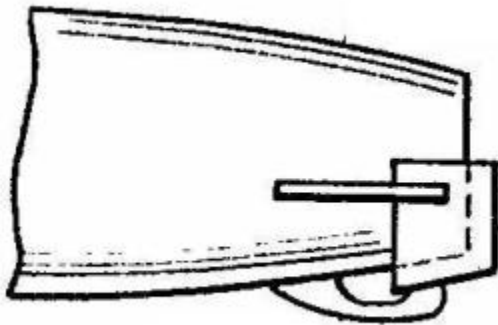
F02K 1/44

Nozzles having means, e.g. a shield, reducing sound radiation in a specified direction ([F02K 1/40](#) takes precedence)

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

**Special rules of classification**

[F02K 1/40](#) takes precedence

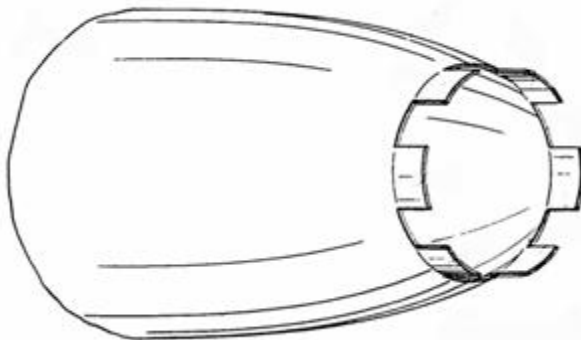
F02K 1/46

Nozzles having means for adding air to the jet or for augmenting the mixing region between the jet and the ambient air, e.g. for silencing ([F02K 1/28](#), [F02K 1/36](#), [F02K 1/38](#) take precedence)

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

**Special rules of classification**

[F02K 1/28](#), [F02K 1/36](#), [F02K 1/38](#) take precedence

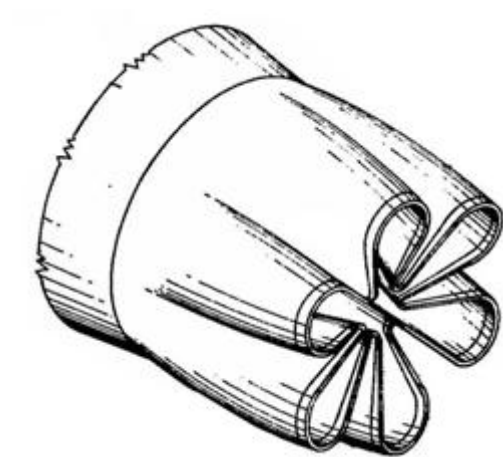
F02K 1/48

Corrugated nozzles

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



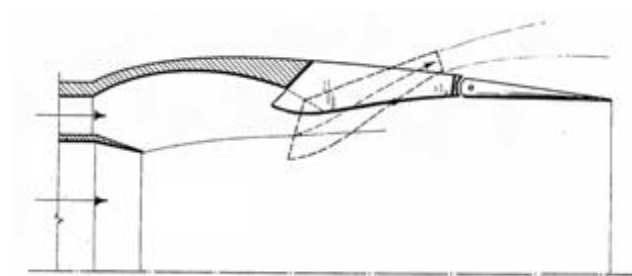
F02K 1/50

Deflecting outwardly a portion of the jet by retractable scoop-like baffles

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



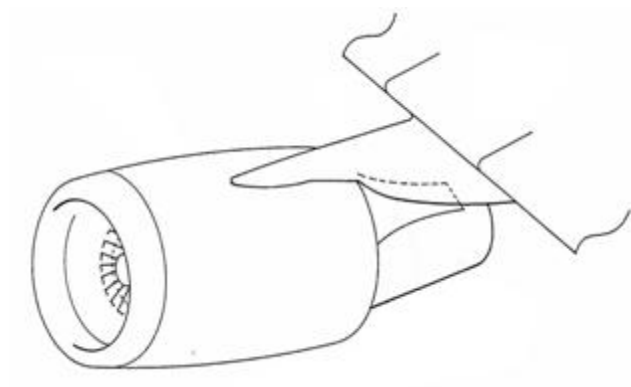
F02K 1/52

Nozzles specially constructed for positioning adjacent to another nozzle or to a fixed member, e.g. fairing

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

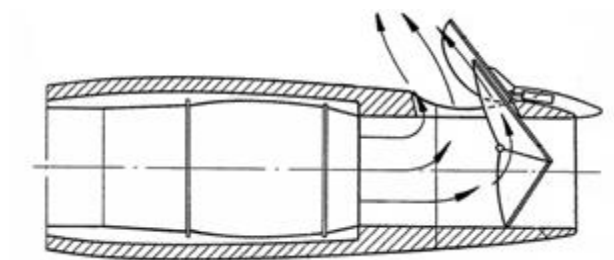
**F02K 1/563**

{in specified direction, e.g. to obviate its reinjection}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



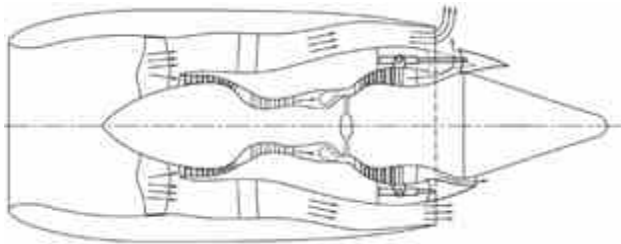
F02K 1/566

{by blocking the rearward discharge by means of a translatable member}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

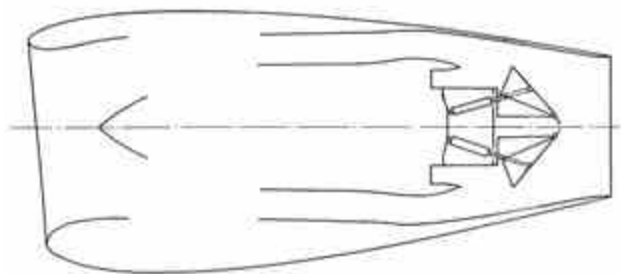
**F02K 1/58**

Reversers mounted on the inner cone or the nozzle housing {or the fuselage}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



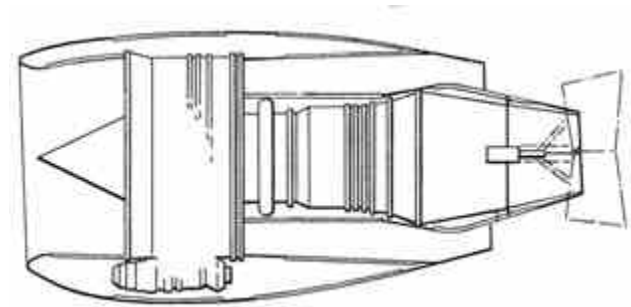
F02K 1/60

by blocking the rearward discharge by means of pivoted eyelids or clamshells, e.g. target-type reversers

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

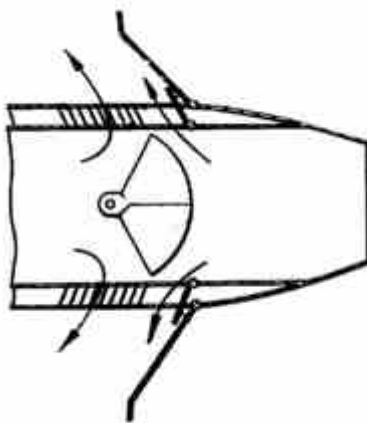
**F02K 1/605**

{the aft end of the engine cowl being movable to uncover openings for the reversed flow}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



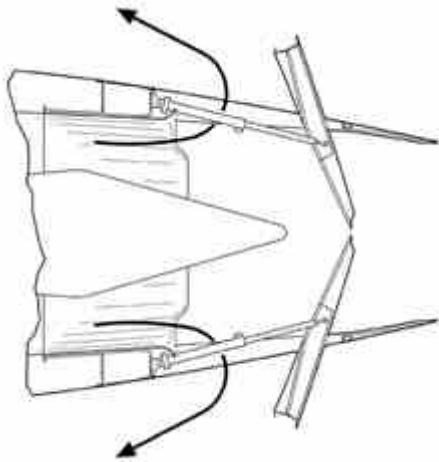
F02K 1/62

by blocking the rearward discharge by means of flaps

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

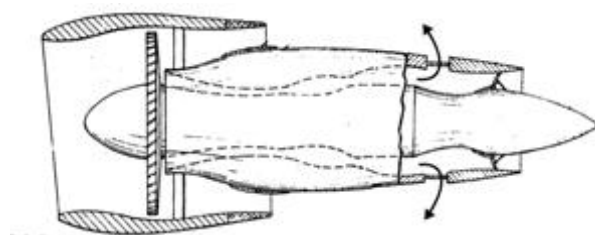
**F02K 1/625**

{the aft end of the engine cowlings being movable to uncover openings for the reversed flow}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



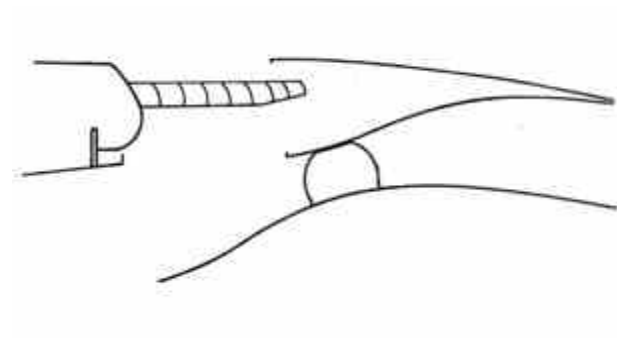
F02K 1/645

{using inflatable diaphragms}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



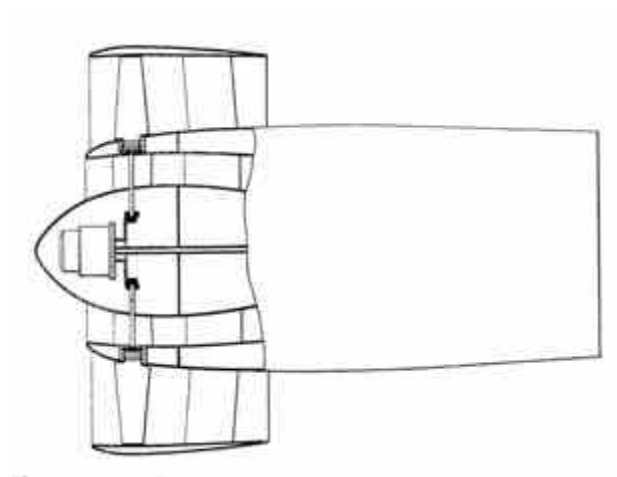
F02K 1/66

using reversing fan blades

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



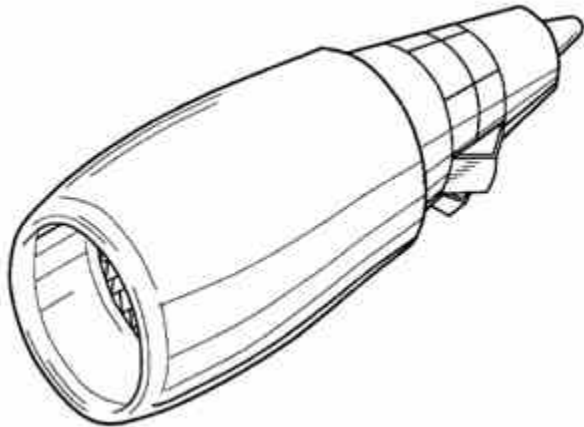
F02K 1/68

Reversers mounted on the engine housing downstream of the fan exhaust section

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



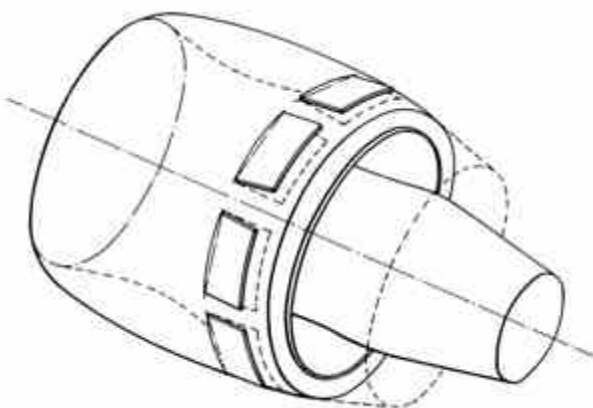
F02K 1/70

using thrust reverser flaps or doors mounted on the fan housing

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



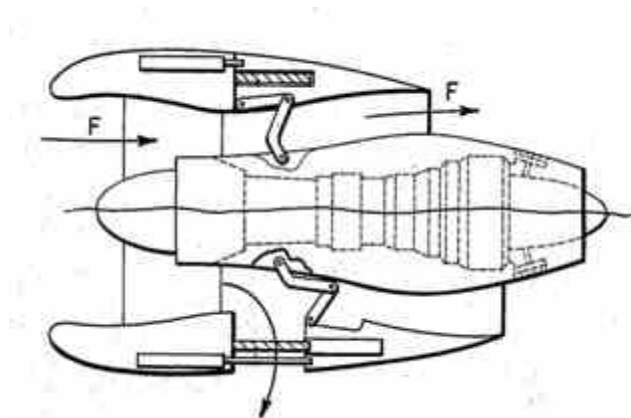
F02K 1/72

the aft end of the fan housing being movable to uncover openings in the fan housing for the reversed flow

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

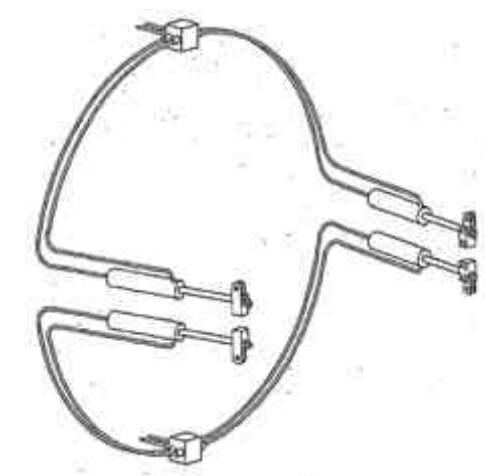
**F02K 1/76**

Control or regulation of thrust reversers

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



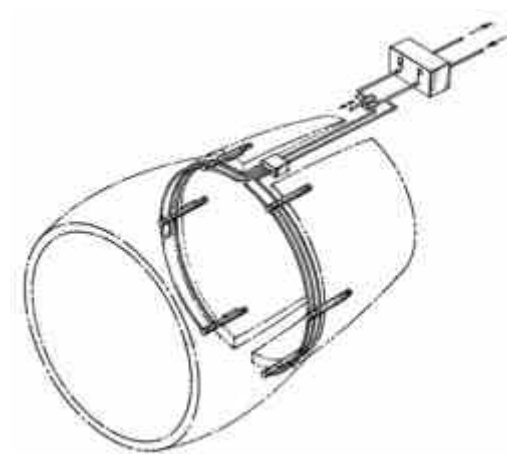
F02K 1/763

{with actuating systems or actuating devices; Arrangement of actuators for thrust reversers}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



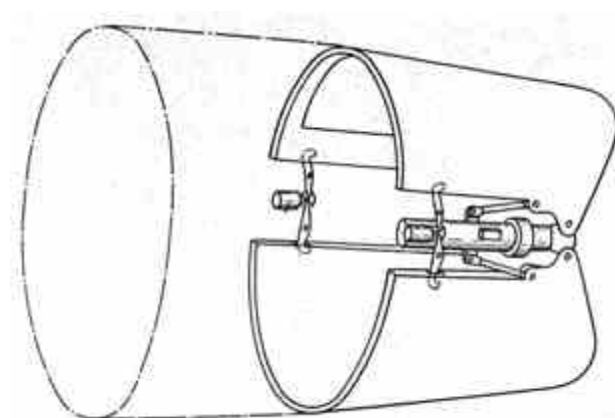
F02K 1/766

{with blocking systems or locking devices; Arrangement of locking devices for thrust reversers}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



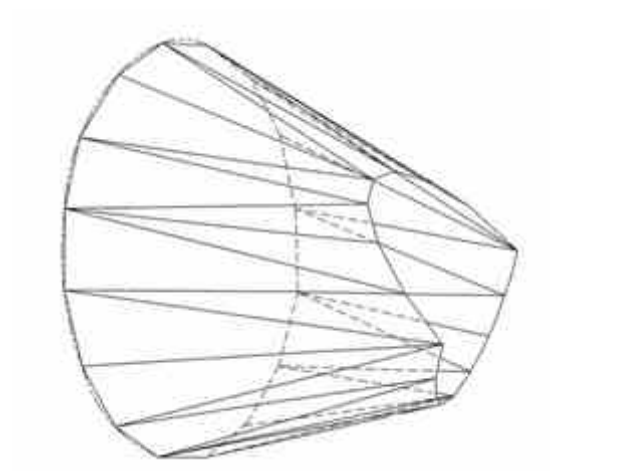
F02K 1/78

Other construction of jet pipes

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



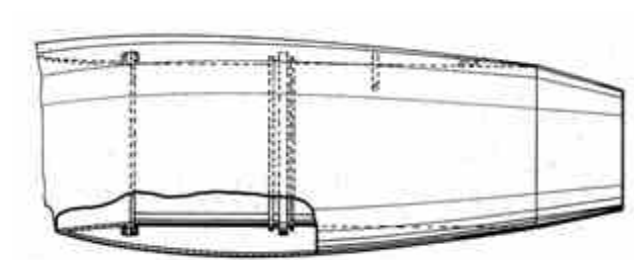
F02K 1/80

Couplings or connections

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



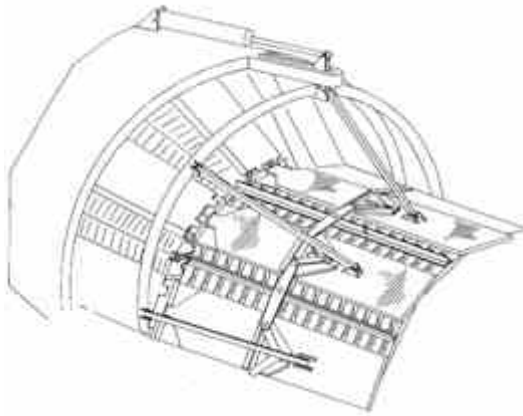
F02K 1/805

{Sealing devices therefor, e.g. for movable parts of jet pipes or nozzle flaps}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



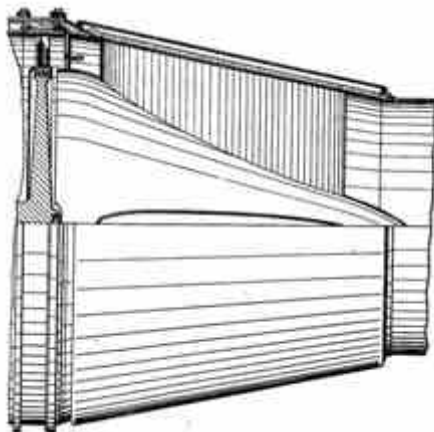
F02K 1/82

Jet pipe walls, e.g. liners

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



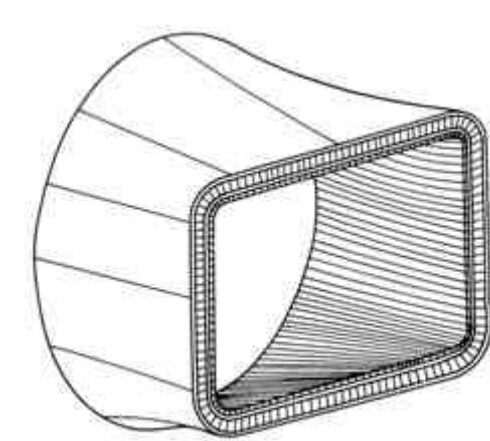
F02K 1/822

{Heat insulating structures or liners, cooling arrangements, e.g. post combustion liners; Infra-red radiation suppressors}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Wall structures in combustion chambers	F23R 3/002
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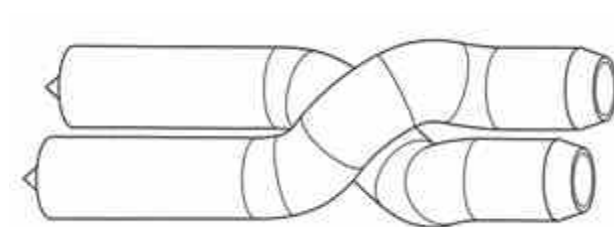
F02K 1/825

{Infra-red radiation suppressors}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



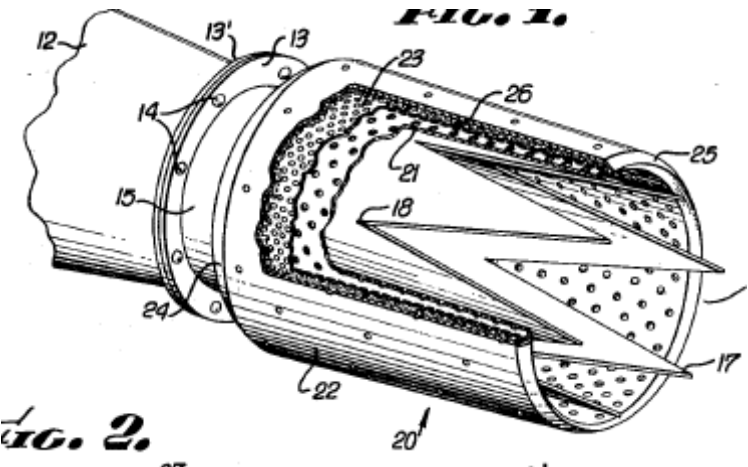
F02K 1/827

{Sound absorbing structures or liners (noise attenuators in general [G10K 11/00](#); noise suppression in air intakes [F02C 7/045](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.



taken from US3215172

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Noise suppression in air intakes	F02C 7/045
Acoustic liners	G10K 11/00

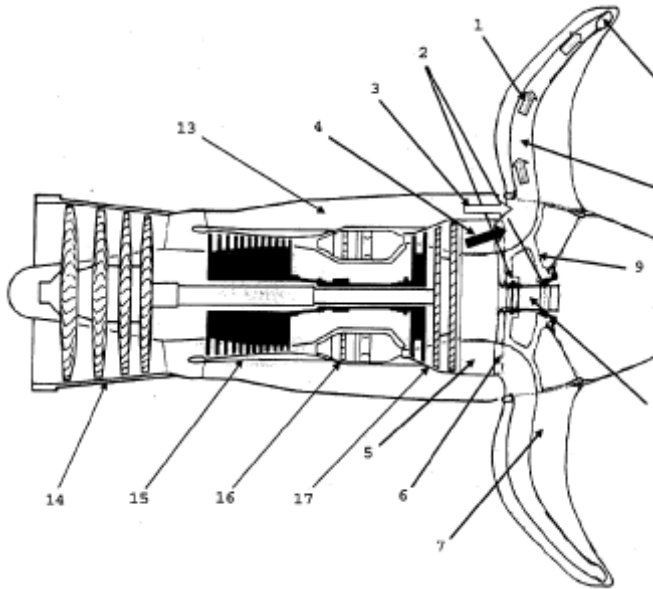
F02K 3/00

Plants including a gas turbine driving a compressor or a ducted fan

Definition statement

This place covers:

Mainly ducted gas turbine plants with ducted fans, whereby the main flow which is only slightly compressed by a fan or the like bypasses the core engine; Heating of the bypass flow; Afterburners.



taken from DE102009036011

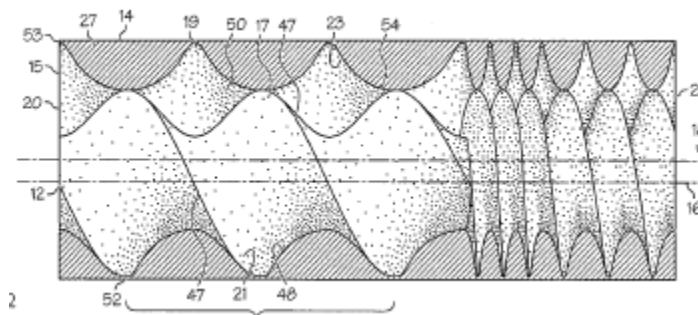
F02K 5/00

Plants including an engine, other than a gas turbine, driving a compressor or a ducted fan

Definition statement

This place covers:

Plants including an engine, other than a gas turbine, driving a compressor or a ducted fan.



taken from EP1798371

F02K 7/00

Plants in which the working fluid is used in a jet only, i.e. the plants not having a turbine or other engine driving a compressor or a ducted fan; Control thereof (rocket-engine plants [F02K 9/00](#))

Definition statement

This place covers:

Plants in which the working fluid is used in a jet only, i.e. the plants not having a turbine or other engine driving a compressor or a ducted fan; Control thereof

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

Ram jet	Compression of the working fluid caused by the engine's forward motion without a rotary compressor
Scram jet	Supersonic combustion ram jet

F02K 9/00

Rocket- engine plants, i.e. plants carrying both fuel and oxidant therefor; Control thereof (chemical composition of propellants [C06B](#), [C06D](#) {launching apparatus for rockets [F41F 3/04](#); explosive charges, ammunition [F42B](#)})

Definition statement

This place covers:

Rocket-engine plant related aspects such as solid and liquid propellant rocket plants; Constructional details of the charges; Supply and feeding of propellant; Starting and restarting.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cosmonautic vehicles	B64G 1/00
Chemical composition of propellants	C06B , C06D
Launching apparatus for rockets	F41F 3/04
Explosive charges, ammunition	F42B